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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/820,459	03/29/2001	Richard Louis Arndt	AUS920010142US1	5645

7590 11/14/2003

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EXAMINER

CHU, GABRIEL L

ART UNIT	PAPER NUMBER
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2184

DATE MAILED: 11/14/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/820,459

Applicant(s)

ARNDT ET AL.

Examiner

Gabriel L. Chu

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 March 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claims 10, 12, 13, 23, and 34 are objected to because of the following informalities:

Referring to claim 10, "the bus" is understood to refer to "a bus", correcting for antecedence.

Referring to line 5 in claim 12, "as set" is understood to refer to "a set".

Referring to line 18 in claim 13, "as set" is understood to refer to "a set".

Referring to line 21 in claim 23, "the bus" is understood to refer to "a bus", correcting for antecedence.

Referring to line 29 in claim 34, "the bus" is understood to refer to "a bus", correcting for antecedence.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 5, 18, and 29 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Referring to claims 5, 18, and 29, it is not clear how the error is recreated in

response to a selected number of recovery attempts occurring. It appears to imply a complex technique in which a process is undertaken to reproduce a previously occurring error such as inducing an error state in a non-faulty system. However, support for this cannot be found in the specification. For the purpose of examination, these claims are interpreted as a failed recovery attempt resulting in the same error.

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 10, 11, 13, 23, 24, 34, and 35 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Referring to claims 10, 13, 23, and 34, "identifying slots", "incrementing an error counter for each identified slot", and "placing the slot" are claimed. It is unclear what the error counter corresponds to and which slot is placed. For the purpose of examination, "incrementing an error counter for each identified slot" is understood to refer to "responsive to the identifying slots on a bus indicating an error state, incrementing an error counter corresponding to the identified slot, of a plurality of error counters, if the slot the error counter corresponds with is identified". Further for the purpose of examination, "responsive to the error counter exceeding a threshold, placing the slot into a permanently unavailable state" is understood to refer to "responsive to the incrementing an error counter corresponding to the identified slot exceeding a threshold, placing the identified slot that corresponds with the error counter into a permanently unavailable state".

Referring to claims 11, 24, and 35, "the slot" further is unclear for the same

reason as its parent claims. For the purpose of examination "responsive to the error counter failing to exceed the threshold, placing the slot into an available state, wherein a device within the slot resumes functioning" is understood to refer to "responsive to the incrementing an error counter corresponding to the identified slot failing to exceed the threshold, placing the identified slot that corresponds with the error counter into an available state, wherein a device with the slot that corresponds with the error counter resumes functioning".

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1, 3-5, 9, 12, 14, 16-18, 22, 25, 27-29, 33 are rejected under 35 U.S.C. 102(e) as being anticipated by US 6574755 to Seon. Referring to claims 1, 14, and 25, Seon discloses responsive to detecting a recovery attempt from an error for an operation involving a hardware component, storing an indication of the attempt (From the abstract, " If the fault occurs on the SCSI bus while the SCSI command is transferred to the target device, the initiator device retries the transfer of the SCSI command to the target device a predetermined number of times."); and responsive to the error exceeding a threshold, placing the hardware component in an unavailable

state (From figure 3, element 305.).

Referring to claims 3, 16, and 27, Seon discloses the placing step comprises: making a call to a hardware interface layer to place the hardware component into a permanent reset state (From figure 3, element 307. Wherein a permanent reset state is a longer reset state (See line 13 of page 19 of Applicant's specification.)).

Referring to claims 4, 17, and 28, Seon discloses the indication is stored in an error log (From figure 3, element 304, wherein the number of retry times is stored).

Referring to claims 5, 18, and 29, Seon discloses responsive to a selected number of recovery attempts occurring, recreating the error (From figure 3, element 304, wherein a retry, or the last predetermined retry, is unsuccessful.).

Referring to claims 9, 22, and 33, Seon discloses the threshold is the error successively a selected number of times (From figure 3, element 304.).

Referring to claim 12, Seon discloses a bus system, a communications unit connected to the bus system, a memory connected to the bus system, wherein the memory includes a set of instructions, and a processing unit connected to the bus system, wherein the processing unit executes the set of instructions (See figure 2) to store an indication of a recovery attempt from an error in response to detecting the recovery attempt (From the abstract, " If the fault occurs on the SCSI bus while the SCSI command is transferred to the target device, the initiator device retries the transfer of the SCSI command to the target device a predetermined number of times."); and place the hardware component in an unavailable state in response to the error exceeding a threshold (From figure 3, element 305.).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 2, 15, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6574755 to Seon as applied to claims 1, 14, and 25 above, and further in view of US 6591324 to Chen et al. Referring to claims 2, 15, and 26, although Seon does not specifically disclose clearing the unavailable state of the hardware component in response to a hot-plug action replacing the hardware component, replacing faulty components through hot swapping is well known in the art. An example of this is shown by Chen et al., from line 33 of column 3, "Various types of hot swappable add-on cards plug into the add-on-card slots 104, such as I/O cards 106 to communicate with external devices (like modems), SCSI cards 108 to communicate with SCSI devices (like hard disks), or network cards 110 to establish network communications with other devices." A person of ordinary skill in the art at the time of the invention would have been motivated to hot swap a card because, from line 49 of column 1, "Such techniques enable an add-on card to be swapped from the bus without powering down the computing device."

10. Claims are 3, 6, 7, 16, 19, 20, 27, 30, and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6574755 to Seon as applied to claims 1, 14, and 25 above. Referring to claims 3, 16, and 27, Seon discloses the placing step comprises: making a call to a hardware interface layer to place the hardware component into a

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reset state (From figure 3, element 305). Although Seon does not specifically disclose this reset state can be a "permanent reset", wherein such a reset is interpreted as an indefinite unavailability, making a faulty device indefinitely unavailable, e.g., removing it from service, is notoriously well known in the art. Examiner takes official notice for taking a component out of service. A person of ordinary skill in the art at the time of the invention would have been motivated to take a device out of service because it is irreparable.

Referring to claims 6, 19, and 30, Seon discloses a typical system structure in figure 2 for a processor (11) communicatively connected to SCSI card (13) through a bus structure. Further, from line 8 of column 4, "When the first MPU 10 sends a specific SCSI command to the hard disk 41 over the SCSI bus 51, the first MPU 10 becomes an initiator device for requesting a SCSI device (or target device) to perform input/output processes, and the hard disk 41, for example, becomes the target device for performing the input/output processes requested by the initiator device." Although Seon does not specifically disclose the error is an error caused by a PCI bus operation, the operation of a SCSI bus on top of a PCI bus is notoriously well known in the art. Examiner takes official notice for a PCI SCSI card. A person of ordinary skill in the art at the time of the invention would have been motivated to use a PCI SCSI card because PCI busses are extremely common in computer systems.

Referring to claims 7, 20, and 31, although Seon does not specifically disclose the detecting and placing steps occur in a firmware layer within the data processing system, performing operations using firmware is notoriously well known in the art.

Examiner takes official notice for performing actions using firmware. A person of ordinary skill in the art at the time of the invention would have been motivated to use firmware to perform system actions because, at least, firmware hold their content without electrical power.

11. Claims 8, 21, and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6574755 to Seon as applied to claims 1, 14, and 25 above, and further in view of US 6243833 to Hitchcock et al. Referring to claims 8, 21, and 32, although Seon does not specifically disclose the detecting step occurs in a device driver and placing steps occurs in a firmware, using a device driver to respond to errors is known in the art and performing operations using firmware is notoriously well known in the art. From line 16 of column 4 of Hitchcock et al., "The hardware designer knows the various errors that may occur during operation of the hardware device and the designer can then build routines to handle these errors into the device driver." Examiner takes official notice for performing actions using firmware. A person of ordinary skill in the art at the time of the invention would have been motivated to use a device driver to perform recovery because, from line 16 of column 4 of Hitchcock et al., "The hardware designer knows the various errors that may occur during operation of the hardware device and the designer can then build routines to handle these errors into the device driver." A person of ordinary skill in the art at the time of the invention would have been motivated to use firmware to perform system actions because, at least, firmware hold their content without electrical power.

Allowable Subject Matter

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12. Claims 10, 11, 13, 23, 24, 34, and 35 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action, using the language set forth by Examiner. Referring to claims 10, 11, 13, 23, 24, 34, and 35, the prior art does not teach or fairly suggest responsive to the incrementing an error counter corresponding to the identified slot exceeding a threshold, placing the identified slot that corresponds with the error counter into a permanently unavailable state, in a method for handling errors, the method comprising: responsive to an occurrence of an error, determining whether the error is a recoverable error; responsive to a determination that the error is a recoverable error, identifying slots on a bus indicating an error state; responsive to the identifying slots on a bus indicating an error state, incrementing an error counter corresponding to the identified slot, of a plurality of error counters, if the slot the error counter corresponds with is identified.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 4809276 to Lemay et al.

US 5815647 to Buckland et al.

US 5864653 to Tavallaei et al.

US 5938776 to Sicola et al.

US 6032271 to Goodrum et al.


US 6333929 to Drott et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gabriel L. Chu whose telephone number is (703) 308-7298. The examiner can normally be reached on weekdays with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert W. Beausoliel, Jr. can be reached on (703) 305-9713. The fax phone number for the organization where this application or proceeding is assigned is (703) 746-7239.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

gc


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